



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,146	12/21/2001	Yu-Jih Liu	0918.0097C	5523
27896	7590	04/20/2006	EXAMINER	
EDEL, SHAPIRO & FINNAN, LLC 1901 RESEARCH BOULEVARD SUITE 400 ROCKVILLE, MD 20850			TRAN, PHUC H	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,146

Applicant(s)

LIU ET AL.

Examiner

PHUC H. TRAN

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 39-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,12-19,21,22,26 and 27 is/are rejected.
- 7) ☒ Claim(s) 3-11,20,23-25,28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

* Note: the claim limitations that employ phrases of the type “**configured to**” are typical of claim limitations, which may not distinguish over the prior art. The limitations after the “**configured to**” performing a function is not a (consider) positive limitation but only requires the ability to so perform.

2. Claim 12 is objected to because of the following informalities: “if the first and second island identifiers are equivalent” fail to particularly point out, what is equivalent which applicant regards as the invention. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 2, 12, & 39-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Larsson et al. (U.S. Patent No. 6704293 B1).

- With respect to claim 1, Larsson teaches a method of broadcasting a message in a wireless communication network (e.g. Fig. 3) having a plurality of communication units including a receiving communication unit having stored therein network topology information including information identifying neighboring communication units forming a first tier of neighbors and information identifying neighboring communication units of the first tier of neighbors forming a second tier of neighbors (e.g. piconets in Fig. 3), the method comprising:

receiving the message at the receiving communication unit (at block 617 a node receives a request for route message in Fig. 6a); and

determining, based on the network topology information, whether to retransmit the message based on whether the neighbors of the receiving communication unit are also neighbors of another one of the plurality of communication units (in Fig. 6a blocks 620, 630, 635, 640, 658, 660 are steps showing the receiving nodes determining whether to rebroadcast the route message to another node or drop the message or sending a response the source node).

- With respect to claim 2, Larsson also teaches wherein said determining whether to retransmit the message comprises determining not to retransmit the message if another communication unit among the plurality of communication units is configured to broadcast messages to a set of communication units that includes the first tier neighbors of the receiving communication unit (e.g. the rebroadcast message is not transmitted back to the sending node)

and at least one other communication unit that is not a neighbor of the receiving communication unit (the rebroadcast the route message only to the neighbor nodes but not the other as step 660 in Fig. 6b).

- With respect to claim 12, Larsson discloses wherein a group of communication units among the plurality of communication units is assigned a first island identifier and the receiving communication unit is assigned a second island identifier, wherein the receiving communication unit transmits the message to the group of communication units if the first and second island identifiers are equivalent (e.g. Fig. 3 shows the piconets 1, 2 and 3).

- With respect to claim 39, Larsson teaches a communication unit suitable for use in a communication network of a plurality of communication units (e.g. Fig. 1-3), the communication unit comprising:

a network topology storage unit having stored therein network topology information including identifiers of neighboring communication units forming a first tier of neighbors and neighbor sets identifying neighbors of the first tier neighbors forming a second tier neighbors (col. 6, lines 21-23); and

a message forwarding unit configured to forward a multicast message using a controlled flood broadcast technique (Fig. 5, blocks 505, 510 and 515) and to forward a unicast message to a destination communication unit using a unicast technique (Fig. 5, blocks 505, 510, 520) if the network topology information stored in the storage unit includes information identifying a next hop in a route between the communication unit and the destination unit (block 520 and 525 in Fig. 5) and using a controlled flood technique if the said network topology information does not include information identifying said next hop (block 520 and 530 in Fig. 5).

- With respect to claim 40, Larsson further comprises a dynamic network maintenance module configured to revise the network topology information stored in the storage unit in response to receiving beacon information from a neighboring communication unit (blocks 535, 540, 550, 555 in Fig. 5).

- With respect to claim 41, Larsson also teaches wherein the dynamic network maintenance module periodically selects a gateway for routing messages based on the network topology information in the storage unit (col. 2, lines 34-37).

- With respect to claim 42, wherein the communication unit is a radio and the communication network is an ad-hoc network of radios (col. 1, lines 14-16).

5. Claims 13-19, 21, 22, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Larsson et al. (U.S. Patent No. 6535498 B1).

- With respect to claim 13, Larsson teaches a method of transmitting a message to a destination communication unit within a wireless communication network having a plurality of communication units (e.g. units in Fig. 3) including an upper layer communication unit (e.g. 303, 305, 309 in Fig. 3) having stored therein routing information for routing to the plurality of communication units in the network (col. 3, lines 13-15), and a receiving communication unit having stored therein network topology information including identifiers of neighboring communication units from which the receiving communication unit has received a message forming a first tier of neighbors, from which the first tier neighbor communication units have received messages forming second tier of neighbors (Fig. 3), the method comprising:

receiving at the receiving communication unit a message destined for a destination communication unit (e.g. Fig. 5 shows steps 415);

determining whether a direct path to the destination communication unit can be identified based on the network topology information stored within the receiving communication unit (eng node determines the direct path as destination node or not the destination node block 520, 522 in Fig. 5);

transmitting the message from the receiving communication unit to a next hop communication unit according to the identified path to the destination communication unit if said path is identified (col. 6, lines 43-46), transmitting to an upper layer communication unit if said path can not be identified, and transmitting via message flooding if the receiving communication unit is not associated with an upper layer communication unit (step 425 in Fig. 5).

- With respect to claim 14, Larsson teaches wherein the message is transmitted using controlled flood techniques if no path to said destination communication unit is identified and the receiving communication unit is not associated with an upper layer communication unit (step 425 shows that the message is rebroadcast to other neighbor nodes).

- With respect to claims 15-17, Larsson discloses wherein in determining a path to the destination communication unit, the destination communication unit must be located within a predetermined number of hops from the receiving communication unit (col. 5, lines 5-14).

- With respect to claims 18-19, Larsson further teaches wherein determining a path to the destination communication unit further includes searching a routing table, stored within the receiving communication unit, containing routes to destination communication units (col. 7, lines 15-20).

- With respect to claims 21-22, Larsson disclose wherein the upper layer communication unit is a cluster-head communication unit (e.g. nodes 305,303,309 are master nodes in Fig. 3).

- With respect to claims 26-27, Larsson discloses wherein the message is transmitted using a controlled flood broadcast of the message if the transmission to said next hop communication unit fails (the blocks 522 back to 425 in Fig. 5).

Allowable Subject Matter

6. Claims 3-11, 20,23-25,28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Vu (U.S. Patent No. 5056085) discloses flood and forward routing for broadcast packets in packet switching networks.
- Flammer (U.S. Patent No. 5007052) discloses method for routing packets by squelched flooding.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUC H. TRAN whose telephone number is (571) 272-3172. The examiner can normally be reached on M-F (8-4:30).


Art Unit: 2616

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHI PHAM can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuc Tran
Assistant Examiner
Art Unit 2664

P.t
4/13/06


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 4/17/06